

Chapter 6 – Data Management and Archiving

Note: This chapter is not due until Phase 3 in December 2005, but the Network has invested sufficient time and funds to warrant a brief progress report.

A long-term ecological monitoring program requires significant investment in data management. The National I&M Program recommends that 30 to 40% of the Network's budget be allocated to this important endeavor. To this end, the Network has hired staff and purchased hardware and software to acquire, manage, and dispense data once monitoring is underway. Staffing envisioned during Phase 1 has been re-evaluated, and the original information management position split into GIS specialist and data manager positions. The Network also shares an information technologist with APIS.

Natural resource monitoring includes spatial, tabular, and temporal components, and GLKN is pursuing new technologies that combine these data types. We are testing geodatabase (GDB) technology as the basic underlying data model. The GDB file format currently uses MS Access as the underlying relational database, consistent with National I&M standards, and it goes further by integrating spatial information. This technology is evolving, but we expect these capabilities to be in place when monitoring begins.

The Great Lakes Inventory and Monitoring Network is taking a lead role in developing a GDB version of the NPS's "Natural Resource Database Template" in order to maintain National I&M Program standards and naming conventions, and to allow data upload for analysis and reporting at the national level. We hope that our efforts provide a template for other Networks moving in the geodatabase direction.

The Network has entered into a cooperative agreement with Michigan State University to create a website (The Great Lakes Natural Resource Information Gateway) that can serve spatial data (maps) and tabular data over the internet. The initial objective of this project is to give parks access to regionally significant data on weather and climate, water resources, land use, and human population dynamics. This regional data will help place parks in context with the larger environment. Ultimately, we expect that this 'Gateway' will make all of the Network's monitoring data readily available to parks and partners - with appropriate protections. The prototype application is being designed using ArcIMS (ESRI's Internet Map Server) and a beta version should be available to parks for review by March 2005.

The Network has also begun testing handheld personal data assistants (PDAs) for mobile data collection and plans to use relational database management systems (i.e., Microsoft SQL Server and ArcSDE -Spatial Database Engine) for robust storage and retrieval of large spatial and tabular datasets. Exploring these capabilities will allow Network staff to develop an operational Enterprise GIS (client/server-based GIS). This should simplify data exchange, allow for access to partner and Network monitoring data, prevent versioning issues, and allow for dissemination of the most current datasets to staff and researchers.